

Notice of Allowability

Application No.

09/985,743

Examiner

Eugene Lee

Applicant(s)

USUI ET AL.

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/7/06.
2. ☒ The allowed claim(s) is/are 1, 2, 6 and 18.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EUGENE LEE
PRIMARY EXAMINER

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DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claims 8-17, previously withdrawn from consideration for being drawn towards a non-elected invention, have been cancelled.

Allowable Subject Matter

2. Claims 1, 2, 6, and 18 are allowed.
3. The following is an examiner's statement of reasons for allowance: The references of record, either singularly or in combination, do not teach or suggest at least a semiconductor device comprising: said side surface of said element isolation trench includes: a first side surface located in the vicinity of said upper end of said element isolation trench and formed to be substantially perpendicular to and extending downwardly from said main surface of said semiconductor substrate, a second side surface located in the vicinity of said bottom surface of said element isolation trench and formed to be substantially perpendicular to said main surface of said semiconductor substrate, and a substantially single, straight and linearly inclined third side surface **directly** connecting said first side surface and said second side surface with each other.

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Regarding claim 2, the references of record, either singularly or in combination, do not teach or suggest at least a semiconductor device comprising: said side surface of said element isolation trench includes: a first side surface located in the vicinity of said upper end of said element isolation trench and formed to be substantially perpendicular to and extending downwardly from said main surface of said semiconductor substrate, a second side surface located in the vicinity of said bottom surface of said element isolation trench and formed to be substantially perpendicular to said main surface of said semiconductor substrate, and a substantially inclined third side surface **directly** connecting said first side surface and said second side surface with each other, wherein the section of at least a central portion of said side surface of said element isolation trench exhibits a substantially curvilinear S shape having an angle of inclination gradually steepened toward a downward direction perpendicular to said main surface of said semiconductor substrate.

Regarding claim 18, the references of record, either singularly or in combination, do not teach or suggest at least a semiconductor device comprising: said side surface of said element isolation trench includes: a first side surface located in the vicinity of said upper end of said element isolation trench and formed to be substantially perpendicular to and extending downwardly from said main surface of said semiconductor substrate, a second side surface located in the vicinity of said bottom surface of said element isolation trench and formed to be substantially perpendicular to said main surface of said semiconductor substrate, and a third side surface, **directly** connecting said first side surface and said second side surface with each other, which is substantially single, straight and linearly inclined with respect to the main surface or

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exhibits a substantially curvilinear S shape having an angle of inclination gradually steepened toward a downward direction perpendicular to said main surface of said semiconductor substrate.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

INFORMATION ON HOW TO CONTACT THE USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Lee whose telephone number is 571-272-1733. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

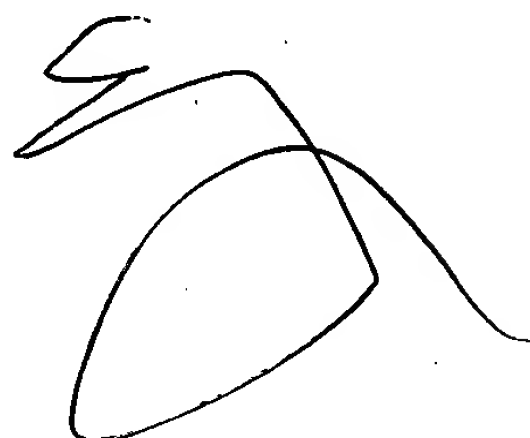
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Eugene Lee
January 16, 2007

EUGENE LEE
PRIMARY EXAMINER

A handwritten signature in black ink, consisting of a stylized 'E' followed by a large, loopy 'L' and a trailing flourish.